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BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking Regarding Microgrids Pursuant to Senate Bill 1339 and Resiliency Strategies.	Rulemaking 19-09-009

PACIFIC GAS AND ELECTRIC COMPANY (U 39 E) COMPLIANCE FILING REGARDING TEMPORARY EMERGENCY GENERATION USE DURING 2020 FIRE SEASON

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Dated: March 11, 2021

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OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking Regarding Microgrids Pursuant to Senate Bill 1339 and Resiliency Strategies.	Rulemaking 19-09-009

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Pursuant to Ordering Paragraph ("OP") 15 of Decision 20-06-017 ("Track 1 Decision"), Pacific Gas and Electric Company ("PG&E") submits this compliance report detailing its use of temporary emergency generators during the 2020 fire season for reducing the impacts of Public Safety Power Shutoff ("PSPS") events. PG&E addresses each of the following requirements from the Track 1 Decision: (a) the total number of diesel generators employed; (b) each deployment location and run time of generators by date and time; (c) the use case, including substations, mid-feeder line segments serving commercial corridors and commercial facilities, backup power generation for societal continuity purposes, including backup power for Community Resource Centers; (d) the reasons why the use of diesel backup power was needed; (e) Cal EnviroScreen percentile for the generator location; (f) number of customers served; (g) fuel types used and extent of use by fuel types; (h) a summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors; (i) lessons learned from an after event analysis of the 2020 wildfire season experience; and (j) recommendations for continuous improvement based on experience from the 2020 wildfire season. Section I, below, addresses requirements (a)-(h). Section II, below, addresses requirements (i) and (j).

I. TABLES PROVIDING DATA ON 2020 TEMPORARY GENERATION DEPLOYMENT AND EMISSIONS

The following tables detail the use of temporary generation by PSPS event that was initiated by PG&E during the 2020 fire season and addresses requirements (a), (b), (c), (d), (e), (f), (g), and (h) from OP 15.

In addition to the data provided in the tables below, PG&E used temporary generation to support one critical facility in Kern County during the December 2, 2020, PSPS event. This was the only temporary generation used during that event. PG&E deployed a 120 kilowatt (kW) and 20 kW unit to a water district facility, and both units ran for approximately 22 hours.

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September 7, 2020 PSPS Event:

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	**Each deployment location** and run time of generators by date and time (b.1)	Each deployment location and **run time of generators by date and time** (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[1] (pounds) (h)
					Date	Time (Hours)						
1	1	500	2	Angwin, Napa County	9/7/2020 23:30	62.3	Temporary Generation Microgrid	Distribution microgrid to support critical and shared services	15.53%	48	RD99 (Renewable Diesel)	POC: 21.96 NOx: 370.56 CO: 34.11 PM10: 6.17 PM2.5: 6.02 SO2: 1.30 GHG: 0.391
2	1	2000	2	Shingletown, Shasta County	9/7/2020 16:55	42.4	Temporary Generation Microgrid	Distribution microgrid to support critical and shared services	27.41%	78	Diesel	POC: 59.82 NOx: 1,009.55 CO: 92.92 PM10: 16.80 PM2.5: 16.39 SO2: 1.30 GHG: 1.6

[1] The following acronyms are used in this column: POC: precursor organic compounds; NOx: oxides of nitrogen; CO: carbon monoxide; PM10: particulate matter with diameters that are generally 10 micrometers and smaller; PM2.5: particulate matter with diameters that are generally 2.5 micrometers and smaller; SO2: sulfur dioxide; GHG: greenhouse gas (carbon dioxide equivalent).

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	**Each deployment location** and run time of generators by date and time (b.1)	Each deployment location and **run time of generators by date and time** (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[1] (pounds) (h)
					Date	Time (Hours)						
3	10	20,000	2	Brunswick, Nevada County	9/7/20 22:39	39.2	Substation	Transmission source de-energized due weather event and safe-to-energize load existed on distribution circuits	67.30%	4191	Diesel	POC: 553.10 NOx: 9,333.53 CO: 859.03 PM10: 155.29 PM2.5: 151.57 SO2: 0.82 GHG: 15.6
4	3	1900	2	Adventist Health St. Helena (ICU), St. Helena, Napa County	9/8/2020 5:04	34.7	Backup Power Support (single site)	COVID-19 Pandemic Response (pre-identified by CA Hospital Association)	15.53%	1	Diesel	POC: 46.50 NOx: 784.62 CO: 72.21 PM10: 13.05 PM2.5: 12.74 SO2: 0.73 GHG: 1.5
5	1	100	3	Sonora Regional Medical Center, Sonora, CA, Tuolumne County	9/7/2020 23:01	27.5	Backup Power Support (single site)	COVID-19 Pandemic Response (pre-identified by CA Hospital Association)	25.99%	1	Diesel	POC: 1.94 NOx: 32.71 CO: 3.01 PM10: 0.54 PM2.5: 0.53 SO2: 0.58 GHG: 0.078

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	**Each deployment location** and run time of generators by date and time (b.1)	Each deployment location and **run time of generators by date and time** (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[1] (pounds) (h)
					Date	Time (Hours)						
6	1	1250	2	Adventist Health Sonora, Sonora, Tuolumne County	9/7/2020 23:05	23.7	Backup Power Support (single site)	COVID-19 Pandemic Response (pre-identified by CA Hospital Association)	58.60%	1	Diesel	POC: 20.90 NOx: 352.63 CO: 32.46 PM10: 5.87 PM2.5: 5.73 SO2: 0.50 GHG: 0.976
7	1	300	4F	Mayers Memorial Hospital, Fall River Mills, Shasta County	9/8/2020 2:20	26.2	Backup Power Support (single site)	COVID-19 Pandemic Response (pre-identified by CA Hospital Association)	33.16%	1	Diesel	POC: 5.54 NOx: 93.50 CO: 8.61 PM10: 1.56 PM2.5: 1.52 SO2: 0.55 GHG: 0.234
8	1	300	4F	Mayers Memorial Hospital, Burney, Shasta County	9/8/2020 2:29	34.7	Backup Power Support (single site)	COVID-19 Pandemic Response (pre-identified by CA Hospital Association)	51.18%	1	Diesel	POC: 7.34 NOx: 123.84 CO: 11.40 PM10: 2.06 PM2.5: 2.01 SO2: 0.73 GHG: 0.234

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	**Each deployment location** and run time of generators by date and time (b.1)	Each deployment location and **run time of generators by date and time** (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[1] (pounds) (h)
					Date	Time (Hours)						
9	1	200	3	Downieville Public Utilities District -Water Treatment Plant, Downieville, Sierra County	9/7/2020 21:51	45.7	Backup Power Support (single site)	Mitigate risk to public health/safety	38.20%	1	Diesel	POC: 6.44 NOx: 108.73 CO: 10.01 PM10: 1.81 PM2.5: 1.77 SO2: 0.96 GHG: 0.156
10	1	1000	2	Plumas County Fairgrounds, Quincy, Plumas County	9/7/2020 21:47	43.7	Backup Power Support (single site)	Mitigate risk to emergency responders. Site firefighting command base	29.93%	1	Diesel	POC: 30.83 NOx: 520.25 CO: 47.88 PM10: 8.66 PM2.5: 8.45 SO2: 0.91 GHG: 0.781
11	1	80	4F	Western Slope Health, Placerville, El Dorado County	9/8/2020 1:12	35.3	Backup Power Support (single site)	Mitigate risk to public health/safety	36.49%	1	Diesel	POC: 1.99 NOx: 33.53 CO: 3.09 PM10: 0.56 PM2.5: 0.54 SO2: 0.74 GHG: 0.062

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	**Each deployment location** and run time of generators by date and time (b.1)	Each deployment location and **run time of generators by date and time** (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[1] (pounds) (h)
					Date	Time (Hours)						
12	1	25	4F	Lebec County Water District, Unincorporate d Kern County	9/8/2020 19:09	20.5	Backup Power Support (single site	Mitigate risk to public health/safety	48.56%	1	Diesel	POC: 0.36 NOx: 6.01 CO: 0.55 PM10: 0.10 PM2.5: 0.10 SO2: 0.43 GHG: 0.02
13	1	100	4F	USFS Mt. Hough Ranger District, Quincy, Plumas County	9/7/2020 21:47	43.9	Backup Power Support (single site)		29.93%	1	Diesel	POC: 3.09 NOx: 52.22 CO: 4.81 PM10: 0.87 PM2.5: 0.85 SO2: 0.92 GHG: 0.078
14	1	20	4F	Napa Fire Department, Napa County	9/8/2020 5:04	54.7	Backup Power Support (single site)	Mitigate risk to emergency response	63.30%	1	Diesel	POC: 0.78 NOx: 13.11 CO: 1.21 PM10: 0.22 PM2.5: 0.21 SO2: 0.016 GHG: 0.016

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	**Each deployment location** and run time of generators by date and time (b.1)	Each deployment location and **run time of generators by date and time** (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[1] (pounds) (h)
					Date	Time (Hours)						
15	1	200	4F	Murphys Fire Department, Valley Springs, Calaveras County	9/7/20 23:15	36.5	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices, etc.	35.17%	49	Diesel	POC: 5.15 NOx: 86.84 CO: 7.99 PM10: 1.44 PM2.5: 1.41 SO2: 0.76 GHG: 0.156
16	1	70	4F	Alta Fire Protection District Community Hall, Alta, Placer County	9/7/02 23:27	39.5	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	16.94%	73	Diesel	POC: 1.93 NOx: 32.61 CO: 3.00 PM10: 0.54 PM2.5: 0.53 SO2: 0.83 GHG: 0.055
17	1	150	4F	Lakehead Lions Hall, Lakehead, Shasta County	9/8/20 1:08	33	Customer Resource Center	Support customers during PSPS event with facility to charge	20.48	44	Diesel	POC: 3.49 NOx: 58.89 CO: 5.42 PM10: 0.98 PM2.5: 0.96 SO2: 0.69 GHG: 0.117

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	**Each deployment location** and run time of generators by date and time (b.1)	Each deployment location and **run time of generators by date and time** (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[1] (pounds) (h)
					Date	Time (Hours)						
								electronic devices				
18	1	70	4F	Downieville Community Hall, Downieville, Sierra County	9/7/2020 21:57	66.5	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	38.20%	144	Diesel	POC: 3.25 NOx: 54.90 CO: 5.05 PM10: 0.91 PM2.5: 0.89 SO2: 1.39 GHG: 0.055

Note 1: PG&E deployed temporary generation during the September 7, 2020 PSPS event to Hoopa and Willow Creek substations in Humboldt County for system capacity support. These two sites were energized for non-PSPS reasons.
Note 2: For some deployment locations, PG&E estimated the quantity of generators deployed and/or the engine tier based on best available information.
Note 3: Not all Customer Resource Center locations that opened during the event necessitated temporary generation to provide power to locations.
Note 4: The calculations estimating the criteria pollutants are based on the Bay Area Air Quality Management District Emission Factors for a Tier 2 Engine. In performing the calculations, PG&E did not differentiate between the use of traditional diesel and renewable diesel. Emission factors for traditional diesel were used for all calculations of criteria pollutants. GHG emissions are based on kW.

September 27, 2020 PSPS Event:

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Gener ator Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[2] (pounds) (h)
					Date	Time (Hours)						
1	1	500	2	Shingletown, Shasta County	9/27/2020 19:42	25.0	Temporary Generation Microgrid	Distribution microgrid to support critical and shared services	27.41%	79	Diesel	POC: 8.46 NOx: 142.75 CO: 13.14 PM10: 2.38 PM2.5: 2.32 SO2: 0.50 GHG: 0.391
2	1	100	4F	Western Slope Health Center, Placerville, El Dorado County	9/28/2020 13:00	24.0	Backup Power Support (single site)	Mitigate risk to public health/safety	36.49%	1	Diesel	POC: 1.68 NOx: 28.55 CO: 2.63 PM10: 0.48 PM2.5: 0.46 SO2: 0.50 GHG: 0.078

[2] The following acronyms are used in this column: POC: precursor organic compounds; NOx: oxides of nitrogen; CO: carbon monoxide; PM10: particulate matter with diameters that are generally 10 micrometers and smaller; PM2.5: particulate matter with diameters that are generally 2.5 micrometers and smaller; SO2: sulfur dioxide; GHG: greenhouse gas (carbon dioxide equivalent).

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Gener ator Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[2] (pounds) (h)
					Date	Time (Hours)						
3	1	200	3	Downieville Public Utilities District -Water Treatment Plant, Downieville, Sierra County	9/28/2020 10:00	6.4	Backup Power Support (single site)	Mitigate risk to public health/safety	38.20%	1	Diesel	POC: 0.50 NOx: 15.23 CO: 1.40 PM10: 0.25 PM2.5: 0.25 SO2: 0.13 GHG: 0.156
4	1	70	4F	Mace Meadows – The Mountain Grille, Pioneer, Amador County	9/27/2020 18:27	18.8	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	19.04%	144	Diesel	POC: 2.40 NOx: 40.46 CO: 3.72 PM10: 0.67 PM2.5: 0.66 SO2: 0.39 GHG: 0.055
5	1	100	4F	Bangor Community Center, Bangor, Butte County	9/27/2020 18:18	22.3	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	66.65%	101	Diesel	POC: 2.98 NOx: 50.26 CO: 4.63 PM10: 0.84 PM2.5: 0.82 SO2: 0.47 GHG: 0.078

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Gener ator Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[2] (pounds) (h)
					Date	Time (Hours)						
6	1	200	4F	Southside Oroville Community Center, Oroville, Butte County	9/27/2020 18:31	18.3	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	33.55%	31	Diesel	POC: 6.85 NOx: 115.63 CO: 10.64 PM10: 1.92 PM2.5: 1.88 SO2: 0.38 GHG: 0.156
7	1	200	4F	Murphys Fire Department, Valley Springs, Calaveras County	9/27/2020 8:00	33.25	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	35.17%	18	Diesel	POC: 4.69 NOx: 79.11 CO: 7.28 PM10: 1.32 PM2.5: 1.28 SO2: 0.70 GHG: 0.156
8	1	200	4F	Pleasant Valley Community Hall, Placerville, El Dorado County	9/27/2020 8:00	35.8	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	15.99%	69	Diesel	POC: 5.05 NOx: 85.18 CO: 7.84 PM10: 1.42 PM2.5: 1.38 SO2: 0.75 GHG: 0.156

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Gener ator Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[2] (pounds) (h)
					Date	Time (Hours)						
9	1	200	4F	Foothills Event Center, Grass Valley, Nevada County	9/27/2020 8:00	34.5	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	67.30%	37	Diesel	POC: 4.86 NOx: 82.08 CO: 7.55 PM10: 1.37 PM2.5: 1.33 SO2: 0.72 GHG: 0.156
10	1	70	4F	Downieville Community Hall, Downieville, Sierra County	9/27/2020 15:41	40.5	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	38.20%	143	Diesel	POC: 2.40 NOx: 40.46 CO: 3.72 PM10: 0.67 PM2.5: 0.66 SO2: 0.85 GHG: 0.055

Note 1: For some deployment locations, PG&E estimated the quantity of generators deployed and/or the engine tier based on best available information.

Note 2: Not all Customer Resource Center locations that opened during the event necessitated temporary generation to provide power to locations.

Note 3: The calculations estimating the criteria pollutants are based on the Bay Area Air Quality Management District Emission Factors for a Tier 2 Engine. In performing the calculations, PG&E did not differentiate between the use of traditional diesel and renewable diesel. Emission factors for traditional diesel were used for all calculations of criteria pollutants. GHG emissions are based on kW.

October 14, 2020 PSPS Event:

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location(e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[3] (pounds) (h)
					Date	Time (Hours)						
1	1	500	2	Angwin, Napa County	10/14/2020 19:04	47.3	Temporary Generation Microgrid	Distribution microgrid to support critical and shared services	15.53%	48	RD99 (HVO)	POC: 16.67 NOx: 281.34 CO: 25.89 PM10: 4.68 PM2.5: 4.57 SO2: 0.99 GHG: 0.523
2	7	7500	2	Calistoga, Napa County	10/14/2020 19:04	42.5	Temporary Generation Microgrid	Distribution microgrid to support critical and shared services	17.48%	1554	RD99 (HVO)	POC: 167.69 NOx: 2,830 CO: 260.44 PM10: 47.08 PM2.5: 45.95 SO2: 0.89 GHG: 7.9

[3] The following acronyms are used in this column: POC: precursor organic compounds; NOx: oxides of nitrogen; CO: carbon monoxide; PM10: particulate matter with diameters that are generally 10 micrometers and smaller; PM2.5: particulate matter with diameters that are generally 2.5 micrometers and smaller; SO2: sulfur dioxide; GHG: greenhouse gas (carbon dioxide equivalent).

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location(e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[3] (pounds) (h)
					Date	Time (Hours)						
3	4	4500	2	Pope Valley, Napa County	10/14/2020 18:12	47.4	Temporary Generation Microgrid	Distribution microgrid to support critical and shared services	15.53%	681	RD99 (HVO)	POC: 150.49 NOx: 2,540 CO: 233.73 PM10: 42.25 PM2.5: 41.24 SO2: 0.99 GHG: 3.5
4	1	500	2	Shingletown, Shasta County	10/14/2020 19:09	42.4	Temporary Generation Microgrid	Distribution microgrid to support critical and shared services	27.41%	78	Diesel	POC: 14.95 NOx: 252.20 CO: 23.21 PM10: 4.20 PM2.5: 4.10 SO2: 0.89 GHG: 0.52
5	1	1000	2	Plumas County Fairgrounds, Quincy, Plumas County	10/15/2020 10:30	48.6	Backup Power Support (single site)	Mitigate risk to emergency responders. Site firefighting command base	29.93%	1	Diesel	POC: 34.29 NOx: 578.58 CO: 53.25 PM10: 9.63 PM2.5: 9.40 SO2: 1.02 GHG: 0.781
6	4	3400	2	Adventist Health St.	10/14/2020 20:00	50.0	Backup Power	COVID-19 Pandemic	15.53%	1	Diesel	POC: 116.56 NOx: 2,024

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location(e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[3] (pounds) (h)
					Date	Time (Hours)						
				Helena (ICU), St. Helena, Napa County			Support (single site)	Response (pre-identified by CA Hospital Association)				CO: 186.25 PM10: 33.67 PM2.5: 32.86 SO2: 1.05 GHG: 2.7
7	1	70	4F	Mace Me–dows - The Mountain Grille, Pioneer, Amador County	10/15/2020 14:00	5	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	19.04%	3	Diesel	POC: 0.25 NOx: 4.17 CO: 0.38 PM10: 0.07 PM2.5: 0.07 SO2: 0.10 GHG: 0.055
8	1	100	4F	Bangor Community Center, Bangor, Butte County	10/14/2020 19:14	38.3	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	66.65%	5	Diesel	POC: 1.89 NOx: 31.96 CO: 2.94 PM10: 0.53 PM2.5: 0.52 SO2: 0.80 GHG: 0.055

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location(e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[3] (pounds) (h)
					Date	Time (Hours)						
9		200	4F	Southside Oroville Community Center, Oroville, Butte County	1014/2020 17:00	49	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	33.55%	15	Diesel	POC: 2.42 NOx: 40.89 CO: 3.76 PM10: 0.68 PM2.5: 0.66 SO2: 1.03 GHG: 0.055
10	1	70	4F	Crosswalk Community Church, Napa, Napa County	1014/2020 17:00	49	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	20.33%	13	Diesel	POC: 2.40 NOx: 40.46 CO: 3.72 PM10: 0.67 PM2.5: 0.66 SO2: 1.03 GHG: 0.055
11	1	70	4F	Alta Fire Protection District Community Hall, Alta, Placer County	10/14/2020 17:00	50	Customer Resource Center	Support customers during PSPS event with facility to charge	16.94%	32	Diesel	POC: 2.45 NOx: 41.28 CO: 3.80 PM10: 0.69 PM2.5: 0.67 SO2: 1.05 GHG: 0.055

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location(e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[3] (pounds) (h)
					Date	Time (Hours)						
								electronic devices				
12	1	100	4F	Half Moon Bay Library, Half Moon Bay, San Mateo County	10/14/2020 20:25	42.25	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	29.50%	27	Diesel	POC: 2.98 NOx: 50.26 CO: 4.63 PM10: 0.84 PM2.5: 0.82 SO2: 0.88 GHG: 0.078
13	1	70	4F	Lower Alleghany Volunteer Fire Department, Alleghany, Sierra County	10/14/2020 10:30	48.6	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	38.20%	45	Diesel	POC: 2.38 NOx: 40.13 CO: 3.69 PM10: 0.67 PM2.5: 0.65 SO2: 1.02 GHG: 0.055
14	1	70	4F	Downieville Community Hall,	10/14/2020 10:30	48.6	Customer Resource Center	Support customers during PSPS event with	38.20%	8	Diesel	POC: 2.38 NOx: 40.13 CO: 3.69 PM10: 0.67

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location(e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[3] (pounds) (h)
					Date	Time (Hours)						
				Downieville, Sierra County				facility to charge electronic devices				PM2.5: 0.65 SO2: 1.02 GHG: 0.055
15	1	200	4F	Joseph Nelson Community Center, Suisun City, Solano County	10/14/2020 17:00	48.5	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	40.02%	37	Diesel	POC: 6.84 NOx: 115.39 CO: 10.62 PM10: 1.92 PM2.5: 1.87 SO2: 1.01 GHG: 0.156

Note 1: For some deployment locations, PG&E estimated the quantity of generators deployed and/or the engine tier based on best available information.

Note 2: Not all Customer Resource Center locations that opened during the event necessitated temporary generation to provide power to locations.

Note 3: The calculations estimating the criteria pollutants are based on the Bay Area Air Quality Management District Emission Factors for a Tier 2 Engine. In performing the calculations, PG&E did not differentiate between the use of traditional diesel and renewable diesel. Emission factors for traditional diesel were used for all calculations of criteria pollutants. GHG emissions are based on kW.

October 21, 2020 PSPS Event:

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator Location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[4] (pounds) (h)
					Date	Time (Hours)						
1	3	6000	2	Hoopa Substation, Hoopa Humboldt County	10/21/2020 00:25	176.6	Substation	Transmission source de-energized due weather event and safe-to-energize load existed on distribution circuits	10.68%	1791	Diesel	POC: 116.56 NOx: 12,615 CO: 186.25 PM10: 33.67 PM2.5: 32.86 SO2: 3.69 GHG: 4.7
2	6	12,000	2	Willow Creek Substation, Willow Creek, Humboldt County	10/21/2020 5:16	171.7	Substation	Transmission source de-energized due weather event and safe-to-energize load existed on	25.54%	2331	Diesel	POC: 1,454 NOx: 24,529 CO: 2,257.59 PM10: 408.1 PM2.5: 398 SO2: 3.59 GHG: 9.4

[4] The following acronyms are used in this column: POC: precursor organic compounds; NOx: oxides of nitrogen; CO: carbon monoxide; PM10: particulate matter with diameters that are generally 10 micrometers and smaller; PM2.5: particulate matter with diameters that are generally 2.5 micrometers and smaller; SO2: sulfur dioxide; GHG: greenhouse gas (carbon dioxide equivalent).

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator Location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[4] (pounds) (h)
					Date	Time (Hours)						
								distribution circuits				
3	1	500	4F	Russ Ranch Substation, Humboldt County	10/21/2020 11:04	165.9	Substation	Transmission source de-energized due weather event and safe-to-energize load existed on distribution circuits	21.91%	2	Diesel	POC: 58.48 NOx: 986.79 CO: 90.82 PM10: 16.42 PM2.5: 16.02 SO2: 3.47 GHG: 0.391
4	1	70	4F	Shingletown, Shasta County	10/22/2020 03:28	15	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	25.26%	237	Diesel	POC: 0.73 NOx: 12.38 CO: 1.14 PM10: 0.21 PM2.5: 0.20 SO2: 0.31 GHG: 0.055

Note 1: For some deployment locations, PG&E estimated the quantity of generators deployed and/or the engine tier based on best available information.

Note 2: Not all Customer Resource Center locations that opened during the event necessitated temporary generation to provide power to locations.

Note 3: The calculations estimating the criteria pollutants are based on the Bay Area Air Quality Management District Emission Factors for a Tier 2 Engine. In performing the calculations, PG&E did not differentiate between the use of traditional diesel and renewable diesel. Emission factors for traditional diesel were used for all calculations of criteria pollutants. GHG emissions are based on kW.
Note 4: The three substations in Humboldt County were de-scoped in the final hours before de-energization for the October 21, 2020 PSPS event, but were kept energized for the October 25, 2020 PSPS event as PG&E had already begun preparations for that latter event.

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October 25, 2020 PSPS Event:

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[5] (pounds) (h)
					Date	Time (Hours)						
1	10	20,000	2	Brunswick Substation, Nevada County	10/25/2020 17:16	49.1	Substation	Transmission source de-energized due weather event and safe-to-energize load existed on distribution circuits	67.30%	4249	Diesel	POC: 692.78 NOx: 11,691 CO: 1,076 PM10: 194.5 PM2.5: 189.9 SO2: 1.03 GHG: 15.6
2	4	8000	2	Placerville, El Dorado County	10/25/2020 17:03	46.4	Temporary Generation Microgrid	Distribution microgrid to support critical and shared services	36.49%	487	Diesel	POC: 261.88 NOx: 4,419 CO: 406.73 PM10: 73.53 PM2.5: 71.76 SO2: 0.97 GHG: 6.2

[5] The following acronyms are used in this column: POC: precursor organic compounds; NOx: oxides of nitrogen; CO: carbon monoxide; PM10: particulate matter with diameters that are generally 10 micrometers and smaller; PM2.5: particulate matter with diameters that are generally 2.5 micrometers and smaller; SO2: sulfur dioxide; GHG: greenhouse gas (carbon dioxide equivalent).

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[5] (pounds) (h)
					Date	Time (Hours)						
3	10	10100	2	Calistoga, Napa County	10/25/2020 15:45	47.3	Temporary Generation Microgrid	Distribution microgrid to support critical and shared services	17.48%	1553	RD99 (HVO)	POC: 334.89 NOx: 5,651 CO: 520.13 PM10: 94.03 PM2.5: 91.77 SO2: 0.98 GHG: 7.9
4	1	500	2	Angwin, Napa County	10/25/2020 15:52	52.5	Temporary Generation Microgrid	Distribution microgrid to support critical and shared services	15.53%	48	RD99 (HVO)	POC: 18.51 NOx: 312.27 CO: 28.74 PM10: 5.20 PM2.5: 5.07 SO2: 1.10 GHG: 0.391
5	2	1000	2	Shingletown, Shasta County	10/25/2020 14:38	27.5	Temporary Generation Microgrid	Distribution microgrid to support critical and shared services	27.41%	79	Diesel	POC: 19.40 NOx: 327.39 CO: 30.13 PM10: 5.45 PM2.5: 5.32 SO2: 0.58 GHG: 0.781

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[5] (pounds) (h)
					Date	Time (Hours)						
6	4	3400	2	Adventist Health St. Helena (ICU), St. Helena, CA	10/25/2020 15:00	54.8	Backup Power Support (single site	COVID-19 Pandemic Response (pre-identified by CA Hospital Association)	15.53%	1	Diesel	POC: 131.43 NOx: 2,218 CO: 204.13 PM10: 36.90 PM2.5: 36.02 SO2: 1.15 GHG: 2.7
7	1	1000	2	Clearlake Adventist ICU Hospital (Main Hospital), Clearlake, Lake County	10/23/2020 22:34	95.8	Backup Power Support (single site	Mitigate risk to public health/safety	35.34%	1	Diesel	POC: 67.59 NOx: 1,140.5 CO: 104.97 PM10: 18.98 PM2.5: 18.52 SO2: 2.00 GHG: 0.781
8	1	100	4F	Clearlake Adventist ICU Hospital (Mobile CT Machine), Clearlake, Lake County	10/23/2020 22:34	92.1	Backup Power Support (single site	Mitigate risk to public health/safety	35.34%	1	Diesel	POC: 6.49 NOx: 109.56 CO: 10.08 PM10: 1.82 PM2.5: 1.78 SO2: 1.93 GHG: 0.078

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[5] (pounds) (h)
					Date	Time (Hours)						
9	1	275	4F	Adventist Health Clearlake Medical Office, Clearlake, Lake County	10/23/2020 22:34	95.5	Backup Power Support (single site	Mitigate risk to public health/safety	51.13%	1	Diesel	POC: 18.49 NOx: 312.00 CO: 28.72 PM10: 5.19 PM2.5: 5.07 SO2: 2.00 GHG: 0.215
10	1	150	4F	Adventist Health Clearlake Professional Bldg., Clearlake, Lake County	10/23/2020 22:34	91.6	Backup Power Support (single site	Mitigate risk to public health/safety	51.13%	1	Diesel	POC: 6.46 NOx: 108.97 CO: 10.03 PM10: 1.81 PM2.5: 1.77 SO2: 1.92 GHG: 0.117
11	1	105	3	Sonora Regional Medical Center, Sonora, Tuolumne County	10/23/2020 20:36	95.2	Backup Power Support (single site	COVID-19 Pandemic Response (pre-identified by CA Hospital Association)	25.99%	1	Diesel	POC: 4.66 NOx: 78.60 CO: 7.23 PM10: 1.31 PM2.5: 1.28 SO2: 1.99 GHG: 0.082

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[5] (pounds) (h)
					Date	Time (Hours)						
12	2	3000	2	Adventist Health Sonora, Sonora, Tuolumne County	10/23/2020 20:13	95.9	Backup Power Support (single site	COVID-19 Pandemic Response (pre-identified by CA Hospital Association)	58.60%	1	Diesel	POC: 202.97 NOx: 3,425.1 CO: 315.23 PM10: 56.99 PM2.5: 55.62 SO2: 2.01 GHG: 2.3
13	1	1000	2	950 Maidu Avenue, Nevada City, Nevada County	10/25/2020 17:03	42.2	Backup Power Support (single site	Support for November 2020 General Election	23.22%	1	Diesel	POC: 29.77 NOx: 502.39 CO: 46.24 PM10: 8.36 PM2.5: 8.16 SO2: 0.88 GHG: 0.781
14	2	360	4I & 4F	Yosemite Springs Park Utility, Coarsegold, Madera County	10/26/2020 16:48	18.5	Backup Power Support (single site	Mitigate risk to public health/safety	13.48%	1	Diesel	POC: 4.69 NOx: 79.16 CO: 7.29 PM10: 1.32 PM2.5: 1.29 SO2: 0.39 GHG: 0.281

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[5] (pounds) (h)
					Date	Time (Hours)						
15	2	240	3 & 4F	Mi-Wuk Mutual Water Co., Mi-Wuk Village, Tuolumne County	10/27/2020 10:17	30.6	Backup Power Support (single site	Mitigate risk to public health/safety	32.69%	1	Diesel	POC: 5.17 NOx: 87.20 CO: 8.03 PM10: 1.45 PM2.5: 1.42 SO2: 0.64 GHG: 0.187
16	1	76	4F	Lebec County Water District, Kern County	10/27/2020 10:17	26.5	Backup Power Support (single site	Mitigate risk to public health/safety	48.56%	1	Diesel	POC: 1.42 NOx: 24.00 CO: 2.21 PM10: 0.40 PM2.5: 0.39 SO2: 0.55 GHG: 0.059
17	1	36	4F	First Mace Meadow Water Assn Inc., Pine Grove, Amador County	10/26/2020 14:59	43.0	Backup Power Support (single site	Mitigate risk to public health/safety	37.66%	1	Diesel	POC: 1.09 NOx: 18.32 CO: 1.69 PM10: 0.30 PM2.5L 0.30 SO2: 0.90 GHG: 0.391

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[5] (pounds) (h)
					Date	Time (Hours)						
18	1	120	4F	Tuolumne County OES, Sonora, Tuolumne County	10/26/2020 15:01	23.6	Backup Power Support (single site	Mitigate risk to public health/safety	25.99%	1	Diesel	POC: 1.99 NOx: 33.52 CO: 3.09 PM10: 0.56 PM2.5: 0.54 SO2: 0.49 GHG: 1.6
19	1	56	4F	Tuolumne Co Sheriff., Sonora, Tuolumne County	10/26/2020 15:55	23.8	Backup Power Support (single site	Mitigate risk to public health/safety	25.99%	1	Diesel	POC: 0.94 NOx: 15.85 CO: 1.46 PM10: 0.26 PM2.5: 0.26 SO2: 0.50 GHG: 0.044
20	1	100	4F	Lake County OES (Middletown Senior Center), Middletown, Lake County	10/27/2020 13:42	19.3	Backup Power Support (single site	Mitigate risk to public health/safety	18.44%	1	Diesel	POC: 1.36 NOx: 22.96 CO: 2.11 PM10: 0.38 PM2.5: 0.37 SO2: 0.40 GHG: 0.078

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[5] (pounds) (h)
					Date	Time (Hours)						
21	1	72	4F	Gill Creek Mutual Water District, Geyserville, Sonoma County	10/27/2020 18:08	15.4	Backup Power Support (single site	Mitigate risk to public health/safety	26.42%	1	Diesel	POC: 0.78 NOx: 13.12 CO: 1.21 PM10: 0.22 PM2.5: 0.21 SO2: 0.32 GHG: 0.057
22	1	200	4F	Lakeport Water Systems, Lakeport, Lake County	10/27/2020 12:37	18.4	Backup Power Support (single site	Mitigate risk to public health/safety	42.41%	1	Diesel	POC: 2.59 NOx: 43.78 CO: 4.03 PM10: 0.73 PM2.5: 0.71 SO2: 0.38 GHG: 0.156
23	1	750	4F	Hidden Valley Lake Community Services District, Hidden Valley Lake, Lake County	10/27/2020 15:43	21.3	Backup Power Support (single site	Mitigate risk to public health/safety	18.44%	1	Diesel	POC: 8.40 NOx: 141.82 CO: 13.05 PM10: 2.36 PM2.5: 2.30 SO2: 0.45 GHG: 0.586

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[5] (pounds) (h)
					Date	Time (Hours)						
24	1	250	4F	Hidden Valley Lake Community Services District, Hidden Valley Lake, Lake County	10/27/2020 15:43	20.8	Backup Power Support (single site	Mitigate risk to public health/safety	29.02%	1	Diesel	POC: 3.67 NOx: 61.86 CO: 5.69 PM10: 1.03 PM2.5: 1.00 SO2: 0.44 GHG: 0.195
25	1	120	4F	Moraga Police Department, Moraga, Contra Costa County	10/27/2020 12:11	27.8	Backup Power Support (single site	Mitigate risk to public health/safety	1.61%	1	Diesel	POC: 2.34 NOx: 39.49 CO: 3.63 PM10: 0.66 PM2.5: 0.64 SO2: 0.58 GHG: 0.094
26	1	70	4F	Mace Meadows - The Mountain Grille, Pioneer, Amador County	10/25/2020 16:03	26.5	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	19.04%	239	Diesel	POC: 1.30 NOx: 21.88 CO: 2.01 PM10: 0.36 PM2.5: 0.36 SO2: 0.55 GHG: 0.055

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[5] (pounds) (h)
					Date	Time (Hours)						
27	1	100	4F	Bangor Community Center, Bangor, Butte County	10/25/2020 14:10	48.9	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	66.65%	88	Diesel	POC: 3.45 NOx: 58.17 CO: 5.35 PM10: 0.97 PM2.5: 0.94 SO2: 1.02 GHG: 0.078:
28	1	200	4F	Southside Oroville Community Center, Oroville, Butte County	10/25/2020 14:20	46.7	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	33.55%	25	Diesel	POC: 6.58 NOx: 111.11 CO: 10.23 PM10: 1.85 PM2.5: 1.80 SO2: 0.98 GHG: 0.156
29	1	200	4F	Murphys Fire Department, Valley Springs, Calaveras County	10/25/2020 15:13	45.3	Customer Resource Center	Support customers during PSPS event with facility to charge	35.17%	207	Diesel	POC: 6.39 NOx: 107.78 CO: 9.92 PM10: 1.79 PM2.5: 1.75 SO2: 0.95 GHG: 0.156

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[5] (pounds) (h)
					Date	Time (Hours)						
								electronic devices				
30	1	20	4F	Stonyford Community Center, Stonyford, Colusa County	10/25/2020 10:14	32.1	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	41.91%	673	Diesel	POC: 0.44 NOx: 7.41 CO: 0.68 PM10: 0.12 PM2.5: 0.12 SO2: 0.67 GHG: 0.016
31	1	200	4F	Cameron Park Community Center, Cameron Park, El Dorado County	10/25/2020 15:00	53.0	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	4.20%	60	Diesel	POC: 7.99 NOx: 134.90 CO: 12.42 PM10: 2.24 PM2.5: 2.19 SO2: 1.19 GHG: 0.156
32	1	150	4F	Sierra Oaks Senior Center, Tollhouse, Fresno County	10/25/2020 21:00	38.6	Customer Resource Center	Support customers during PSPS event with	13.75%	206	Diesel	POC: 4.08 NOx: 68.88 CO: 6.34

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[5] (pounds) (h)
					Date	Time (Hours)						
								facility to charge electronic devices				PM10: 1.15 PM2.5: 1.12 SO2: 0.81 GHG: 0.117
33	1	65	4F	Coarsegold Elementary School, Coarsegold, Madera County	10/25/2020 21:10	19.5	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	22.69%	3	Diesel	POC: 0.89 NOx: 15.06 CO: 1.39 PM10: 0.25 PM2.5: 0.24 SO2: 0.41 GHG: 0.051
34	1	100	4F	North Fork Elementary School, North Folk, Madera County	10/25/2020 21:01	21.1	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	55.15%	176	Diesel	POC: 1.49 NOx: 25.10 CO: 2.31 PM10: 0.42 PM2.5: 0.41 SO2: 0.44 GHG: 0.078
35	1	200	4F	Yosemite High School,	10/25/2020 21:03	37.9	Customer Resource Center	Support customers during PSPS	8.49%	14	Diesel	POC: 5.34 NOx: 90.17 CO: 8.30

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[5] (pounds) (h)
					Date	Time (Hours)						
				Oakhurst, Madera County				event with facility to charge electronic devices				PM10: 1.50 PM2.5: 1.46 SO2: 0.79 GHG: 0.156
36	1	100	4F	Willits Community Center, Willits, Mendocino County	10/25/2020 8:00	62.0	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	44.04%	5	Diesel	POC: 4.37 NOx: 73.76 CO: 6.79 PM10: 1.23 PM2.5: 1.20 SO2: 1.30 GHG: 0.078
37	1	70	4F	Crosswalk Community Church, Napa, Napa County	10/25/2020 15:00	50.0	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	20.33%	60	Diesel	POC: 2.45 NOx: 41.28 CO: 3.80 PM10: 0.69 PM2.5: 0.67 SO2: 1.05 GHG: 0.055

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[5] (pounds) (h)
					Date	Time (Hours)						
38	1	200	4F	Foothills Event Center, Grass Valley, Nevada County	10/25/2020 10:50	56.7	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	67.30%	392	Diesel	POC: 7.99 NOx: 134.90 CO: 12.42 PM10: 2.24 PM2.5: 2.19 SO2: 1.19 GHG: 0.156
39	1	70	4F	NSJ Community Center, San Juan, Nevada County	10/25/2020 14:00	70.4	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	30.58%	259	Diesel	POC: 3.44 NOx: 58.12 CO: 5.35 PM10: 0.97 PM2.5: 0.94 SO2: 1.47 GHG: 0.055
40	1	100	4F	Madelyn Helling Library, Nevada City, Nevada County	10/25/2020 15:11	52.0	Customer Resource Center	Support customers during PSPS event with facility to charge	23.22%	167	Diesel	POC: 3.67 NOx: 61.86 CO: 5.69 PM10: 1.03 PM2.5: 1.00 SO2: 1.09 GHG: 0.078

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[5] (pounds) (h)
					Date	Time (Hours)						
								electronic devices				
41	1	70	4F	Alta Fire Protection District Community Hall, Alta, Placer County	10/25/2020 15:11	49.0	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	16.94%	128	Diesel	POC: 3.44 NOx: 58.12 CO: 5.35 PM10: 0.97 PM2.5: 0.94 SO2: 1.47 GHG: 0.055
42	1	70	4F	Gold Country Fairgrounds, Auburn, Placer	10/25/2020 15:00	53.5	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	34.29%	123	Diesel	POC: 2.54 NOx: 42.93 CO: 3.95 PM10: 0.71 PM2.5: 0.70 SO2: 1.09 GHG: 0.055
43	1	100	4F	Half Moon Bay Library, Half Moon Bay, San Mateo County	10/25/2020 22:00	37.1	Customer Resource Center	Support customers during PSPS event with	29.50%	65	Diesel	POC: 2.62 NOx: 44.13 CO: 4.06

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[5] (pounds) (h)
					Date	Time (Hours)						
								facility to charge electronic devices				PM10: 0.73 PM2.5: 0.72 SO2: 0.78 GHG: 0.078
44	1	150	4F	Inter-Mountain Fairground, McArthur, Shasta County	10/25/2020 8:00	56.5	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	33.16%	115	Diesel	POC: 5.97 NOx: 100.82 CO: 9.28 PM10: 1.68 PM2.5: 1.64 SO2: 1.18 GHG: 0.117
45	1	70	4F	Happy Valley Community Center, Anderson, Shasta County	10/25/2020 10:00	33.1	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	25.26%	433	Diesel	POC: 1.62 NOx: 27.33 CO: 2.52 PM10: 0.45 PM2.5: 0.44 SO2: 0.69 GHG: 0.055
46	1	70	4F	Lower Alleghany Volunteer Fire	10/25/2020 14:14	68.9	Customer Resource Center	Support customers during PSPS	38.20%	30	Diesel	POC: 3.37 NOx: 56.89 CO: 5.24

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[5] (pounds) (h)
					Date	Time (Hours)						
				Department, Alleghany, Sierra County				event with facility to charge electronic devices				PM10: 0.95 PM2.5: 0.92 SO2: 1.44 GHG: 0.055
47	1	70	4F	Downieville Community Hall, Downieville, Sierra County	10/25/2020 14:14	68.9	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	38.20%	243	Diesel	POC: 3.37 NOx: 56.89 CO: 5.24 PM10: 0.95 PM2.5: 0.92 SO2: 1.44 GHG: 0.055
48	1	200	4F	Joseph Nelson Community Center, Suisun City, Solano County	10/25/2020 15:00	50.5	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	40.02%	276	Diesel	POC: 7.12 NOx: 120.15 CO: 11.06 PM10: 2.00 PM2.5: 1.95 SO2: 1.06 GHG: 0.156

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[5] (pounds) (h)
					Date	Time (Hours)						
49	1	150	4F	Red Bluff Veterans Hall, Red Bluff, Tehama County	10/25/2020 8:00	53.5	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	53.83%	23	Diesel	POC: 5.66 NOx: 95.47 CO: 8.79 PM10: 1.59 PM2.5: 1.55 SO2: 1.12 GHG: 0.117
50	1	300	3	Burnt Ranch School, Burnt Ranch, Trinity County	10/25/2020 8:00	34	Customer Resource Center	Support customers during PSPS event with facility to charge electronic devices	8.58%	102	Diesel	POC: 7.19 NOx: 121.34 CO: 11.17 PM10: 2.02 PM2.5: 1.97 SO2: 0.71 GHG 0.234
51	1	70	4F	Mother Lode Fairgrounds, Sonora, Tuolumne County	10/25/2020 16:02	27	Customer Resource Center	Support customers during PSPS event with facility to charge	58.60%	216	Diesel	POC: 1.32 NOx: 22.29 CO: 2.05 PM10: 0.37 PM2.5: 0.36 SO2: 0.56 GHG: 0.055

Row No.	Total number of diesel generators employed (a)	Total Genera-tion (KW)	Genera tor Tier	Each deployment location and run time of generators by date and time (b.1)	Each deployment location and run time of generators by date and time (b.2)		Use Case (c)	Reason for Use of Diesel Backup Power (d)	Cal EnviroScreen percentile for the generator location (e)	number of customers served (f)	Fuel types used and extent of use by fuel types (g)	Summary of emissions by greenhouse gas (GHG) and criteria air pollutant emissions factors[5] (pounds) (h)
					Date	Time (Hours)						
								electronic devices				

Note 1: For some deployment locations, PG&E estimated the quantity of generators deployed and/or the engine tier based on best available information.
Note 2: Not all Customer Resource Center locations that opened during the event necessitated temporary generation to provide power to locations.
Note 3: The calculations estimating the criteria pollutants are based on the Bay Area Air Quality Management District Emission Factors for a Tier 2 Engine. In performing the calculations, PG&E did not differentiate between the use of traditional diesel and renewable diesel. Emission factors for traditional diesel were used for all calculations of criteria pollutants. GHG emissions are based on kW.
Note 4: Three substations (Hoopa, Willow Creek, Russ Ranch) in Humboldt County were energized with temporary mobile generation during the October 25, 2020 PSPS event. Run time and emissions data for these three substations is shown above in the October 21, 2020 PSPS event table since the mobile generation was prepared for the October 21, 2020 PSPS event but de-scoped in the final hours before de-energization. The generation remained onsite and powered as PG&E was preparing already for the October 25, 2020 PSPS event.

II. LESSONS LEARNED FROM THE 2020 TEMPORARY GENERATION PROGRAM AND RECOMMENDATIONS FOR CONTINUOUS IMPROVEMENT

In this section, PG&E addresses requirements (i) and (j) of OP 15 of the Track 1 Decision. Requirement (i) requires PG&E to detail lessons learned from an after-event analysis of the 2020 wildfire season experience. Requirement (j) requires PG&E provide recommendations for continuous improvement based on experience from the 2020 wildfire season.

As 2020 was the first year in which PG&E reserved a large fleet of temporary generation to reduce the impacts of PSPS, PG&E undertook significant effort in advance of the fire season to increase its staffing for the Temporary Generation Branch within its Emergency Operations Center ("EOC") during PSPS events and to perform test exercises to ensure that in-event processes were understood and any issues identified. The deployment of temporary generation across multiple events and use cases in 2020 allowed PG&E to support thousands of customers and derive learnings through which it will continue to improve its use of temporary generation to support customers in 2021 and beyond. The following bullets summarize the key lessons learned from an after-event analysis of the 2020 wildfire experience and also opportunities for continuous improvement in 2021:

- PG&E's PSPS event scoping timeline necessitates that temporary generation be pre-staged and ready to operate where possible at the start of the season, particularly for large sites at primary voltage. PSPS event weather polygons, and thus the PSPS impact scope, can continue to change throughout the PSPS event scoping process. This can leave PG&E with less than 48 hours before de-energization to complete its transmission-level "playbook," which is needed to identify in-scope substations with safe-to-energize load that can be supported by temporary generation and then also ensure the temporary generation units can be transported to those substations in time.
- Given this operational learning, in 2021 a higher percentage of substations will be prepared as "ready-to-energize," with generation interconnection, tested, and released in advance of a PSPS event to limit in-event operational constraints and to enable PG&E to

energize these sites prior to de-energization. Accordingly, PG&E is adapting its temporary generation procurement strategy in 2021 to focus on pre-staging generation at sites with the highest likelihood of experiencing PSPS impacts with safe-to-energize loads.

- The safe and timely deployment of temporary generation for multiple use cases during dynamic PSPS events requires a specialized EOC Branch for in-event execution. Given the dynamics of event scoping, sophisticated and ongoing real-time coordination was required between PG&E's EOC, Electric Distribution Emergency Center (EDEC), field engineers overseeing temporary generation deployment, and contractors delivering and connecting generators. To manage this operational challenge, PG&E created a specialized Temporary Generation Branch within the Operations Section of the EOC. The Temporary Generation Branch centralized planning, logistics, and operations functions to ensure as many customers would be safely supported with temporary generation during each event. The Temporary Generation Branch was staffed with four teams of six individuals each. All individuals who served in the Temporary Generation Branch underwent significant online training and engaged in at least one of PG&E's PSPS exercises in advance of wildfire season. Given the importance of this function, and the demand that the 2020 season presented on the individuals in the Temporary Generation Branch, in 2021 PG&E is exploring the option to expand the branch to eight teams and further strengthening pre-season training to ensure operational continuity.
- The 2020 fire season demonstrated that PSPS events are complex and dynamic (and regularly overlap with parallel emergency events such as system reliability events and/or wildfires), and that PG&E needs to keep operational complexity to a minimum. As PG&E considers ways to pilot diesel-alternative technology at select sites in 2021, the incorporation of the new technologies and processes (e.g., fueling logistics) will require significant testing and piloting before scaling to maintain integrity of operational execution.

- Temporary generator contractors need significant in-event situational awareness so they can support PSPS mitigation objectives effectively. In 2020, PG&E's temporary generator contractors were critical contributors to the safe and timely deployment and demobilization of temporary generation during PSPS events. PG&E's Temporary Generation Branch coordinated with contractors throughout PSPS events, and this coordination grew more critical and complex as multiple events overlapped (i.e. PSPS concurrent with wildfire response support). During 2020 after action reviews, PG&E's contractor partners stated that they saw significant improvements to in-event coordination compared to 2019, and that improvements could go further in 2021 by strengthening in-event communication. In 2021, PG&E will work with contractors to prepare for the wildfire season, pre-defining communication protocols and training Temporary Generation Branch members to share information effectively with contractors throughout events.
- PG&E worked with its temporary generation vendors in 2020 to prioritize the use of RD99 (i.e., renewable diesel) at substations in high population dense areas that sit within reasonable proximity to the renewable fuel racks. Thus, PG&E had capabilities to use RD99 at the following substations: Half Moon Bay, Sausalito, Greenbrae, Calistoga, Highway, Molina, San Rafael, Alto, Bolinas, Ignacio. In 2020, only one of these substations, Calistoga, had safe-to-energize load during a PSPS event and utilized RD99. In addition, several temporary microgrids (also referred to as Resilience Zones) in Angwin, Calistoga, and Pope Valley utilized RD99. Notwithstanding these uses, there were logistical issues in 2020 with using RD99 across all of PG&E's service area due to RD99 storage (a.k.a. fuel rack) locations being predominantly in the San Francisco Bay Area. A substation's distance from the fuel racks limited the ability to refill the temporary mobile generation units with RD99 in a timely fashion during a PSPS event. In attempting to address this logistical issue, PG&E explored staging renewable diesel storage tanks at some of the more remote substations for initial fueling as needed in an

event. However, due to safety and space concerns at the substations, this did not prove a viable option. In 2021, PG&E plans to expand RD99 use considerably with our prime fuel vendor (Pac State) undertaking expansion of fuel storage facilities strategically placed throughout PG&E's service territory to more easily transport RD99 to the temporary generation locations during PSPS events in a timely manner for fueling the units.

Respectfully Submitted,

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